writes, 'the man who stays on particular feeling must remain outside philosophy.' The philosopher's business, according to Mr. Bradley, is to qualify the real 'ideally' (i. e. by concepts), and never to look back. The 'ideas' meanwhile yield nothing but a patchwork, and show no unity like that which the living perception gave. What shall one do in these perplexing circumstances? Unwilling to go back, Bradley only goes more desperately forward. He makes a flying leap ahead, and assumes, beyond the vanishing point of the whole conceptual perspective, an 'absolute' reality, in which the coherency of feeling and the completeness of the intellectual ideal shall unite in some indescribable way. Such an absolute totality-in unity *can* be, it *must* be, it *shall* be, it *is* he says. Upon this incomprehensible metaphysical object the Bradleyan metaphysic establishes its domain.[1]

The sincerity of Bradley's criticisms has cleared the air of metaphysics and made havoc

[1] Mr. Bradley has expressed himself most pregnantly in an article in volume xviii, N. S. of *Mind*, p. 489. See also his *Appearance and Reality*, *passim*, especially the Appendix to the second edition.

future time in the person of numberless perceivers, is to substitute our various conceptual systems which, monstrous abridgments though they be, are nevertheless each an equivalent, for some partial aspect of the full perceptual reality which we can never grasp.

This, essentially, is Bergson's view of the matter, and with it I think that we should rest content.[1]

Summary

I will now sum up compendiously the result of what precedes. If the aim of philosophy were the taking full possession of all reality by the mind, then nothing short of the whole of immediate perceptual experience could be the subject-matter of philosophy, for only in such experience is reality intimately and concretely found. But the philosopher, although he is unable as a finite being to compass more than a few passing moments of such experience, is yet able to extend his knowledge beyond such moments by the ideal symbol of

[1] Bergson's most compendious statement of his doctrine is in the 'Introduction à la Métaphysique,' in the *Revue de Métaphysique et de Morale*, 1903, p. 1. For a brief comparison between him and Bradley, see an essay by W. James, in the *Journal of Philosophy*, vol. vii, no. 2.

CHAPTER VI

PERCEPT AND CONCEPT—SOME COROLLARIES

THE first corollary of the conclusions of the foregoing chapter is that *the tendency known in philosophy as empiricism, becomes confirmed.* Empiricism proceeds from parts to wholes, treating the parts as fundamental both in the order of being and in the order of our knowledge.[1] In human experience the parts are percepts, built out into wholes by our conceptual additions. The percepts are singulars that change incessantly and never return exactly as they were before. This brings an element of concrete novelty into our experience. This novelty finds no representation in the conceptual method, for concepts are abstracted from experiences already seen or given,

1. Novelty becomes possible

[1] Naturally this applies in the present place only to the greater whole which philosophy considers; the universe namely, and its parts, for there are plenty of minor wholes (animal and social organisms, for example) in which both the being of the parts and our understanding of the parts are founded.

the pretension to an all-inclusive vision. It ekes out the narrowness of personal experience by concepts which it finds useful but not sovereign; but it stays inside the flux of life expectantly, recording facts, not formulating laws, and never pretending that man's relation to the totality of things as a philosopher is essentially different from his relation to the parts of things as a daily patient or agent in the practical current of events. Philosophy, like life, must keep the doors and windows open.

In the remainder of this book we shall hold fast to this empiricist view. We shall insist that, as reality is created temporally day by day, concepts, although a magnificent sketch-map for showing us our bearings, can never fitly supersede perception, and that the 'eternal' systems which they form should least of all be regarded as realms of being to know which is a kind of knowing that casts the knowledge of particulars altogether into the shade. That rationalist assumption is quite beside the mark. Thus does philosophy prove again that

which mutually interpenetrate. The conceptual systems of mathematics, logic, æsthetics, ethics, are such realms, each strung upon some peculiar form of relation, and each differing from perceptual reality in that in no one of them is history or happening displayed. Perceptual reality involves and contains all these ideal systems, and vastly more besides.

3. The self-sameness of ideal objects

A concept, it was said above, means always the same thing: Change means always change, white always white, a circle always a circle. On this self-sameness of conceptual objects the static and 'eternal' character of our systems of ideal truth is based; for a relation, once perceived to obtain, must obtain always, between terms that do not alter. But many persons find difficulty in admitting that a concept used in different contexts can be intrinsically the same. When we call both snow and paper 'white' it is supposed by these thinkers that there must be two predicates in the field. As James Mill says:[1] 'Every colour is an individual colour,

[1] *Analysis of the Human Mind* (1869), i, 249.

for the other in certain operations without changing the result. If we are to discuss sameness profitably we must bear these pragmatic meanings in mind.

Do then the snow and the paper show no difference in color? And can we use them indifferently in operations? They may certainly replace each other for reflecting light, or be used indifferently as backgrounds to set off anything dark, or serve as equally good samples of what the word 'white' signifies. But the snow may be dirty, and the paper pinkish or yellowish without ceasing to be called 'white'; or both snow and paper in one light may differ from their own selves in another and still be 'white,' — so the no-difference criterion seems to be at fault. This physical difficulty (which all house painters know) of matching two tints so exactly as to show no difference seems to be the sort of fact that nominalists have in mind when they say that our ideal meanings are never twice the same. Must we therefore admit that such a concept as 'white' can never keep exactly the same meaning?

white is always the same white. What sense can there be in insisting that although we ourselves have fixed it as the same, it cannot be the same twice over? It works perfectly for us on the supposition that it is there self-identically; so the nominalist doctrine is false of things of that conceptual sort, and true only of things in the perceptual flux.

What I am affirming here is the platonic doctrine that concepts are singulars, that concept-stuff is inalterable, and that physical realities are constituted by the various concept-stuffs of which they 'partake.' It is known as 'logical realism' in the history of philosophy; and has usually been more favored by rationalistic than by empiricist minds. For rationalism, concept-stuff is primordial and perceptual things are secondary in nature. The present book, which treats concrete percepts as primordial and concepts as of secondary origin, may be regarded as somewhat eccentric in its attempt to combine logical realism with an otherwise empiricist mode of thought.[1]

[1] For additional remarks in favor of the sameness of conceptual ob-

in which a painted background continues a real foreground so cunningly that one fails to detect the joint. The world we practically live in is one in which it is impossible, except by theoretic retrospection, to disentangle the contributions of intellect from those of sense. They are wrapt and rolled together as a gunshot in the mountains is wrapt and rolled in fold on fold of echo and reverberative clamor. Even so do intellectual reverberations enlarge and prolong the perceptual experience which they envelop, associating it with remoter parts of existence. And the ideas of these in turn work like those resonators that pick out partial tones in complex sounds. They help us to decompose our percept into parts and to abstract and isolate its elements.

The two mental functions thus play into each other's hands. Perception prompts our thought, and thought in turn enriches our perception. The more we see, the more we think; while the more we think, the more we see in our immediate experiences, and the greater grows the detail and the more significant the

real. Rationalistic thought, with its exclusive interest in the unchanging and the general, has always de-realized the passing pulses of our life. It is no small service on empiricism's part to have exorcised rationalism's veto, and reflectively justified our instinctive feeling about immediate experience. 'Other world?' says Emerson, 'there is no other world,' — than this one, namely, in which our several biographies are founded.

> 'Natur hat weder Kern noch Schale;
> Alles ist sie mit einem male.
> Dich prüfe du nur allermeist,
> Ob du Kern oder Schale seist.'

The belief in the genuineness of each particular moment in which we feel the squeeze of this world's life, as we actually do work here, or work is done upon us, is an Eden from which rationalists seek in vain to expel us, now that we have criticized their state of mind.

But they still make one last attempt, and charge us with self-stultification.

'Your belief in the particular moments,' they insist, 'so far as it is based on reflective argu-

original seat as if nothing had happened. That concepts can neutralize other concepts is one of their great practical functions. This answers also the charge that it is self-contradictory to use concepts to undermine the credit of conception in general. The best way to show that a knife will not cut is to try to cut with it. Rationalism itself it is that has so fatally undermined conception, by finding that, when worked beyond a certain point, it only piles up dialectic contradictions.[1]

[1] Compare further, as to this objection, a note in W. James: *A Pluralistic Universe*, pp. 339–343.

that the parts are distinct and that the whole is a resultant.

This doctrine rationalism opposes, contending that the whole is fundamental, that the parts derive from it and all belong with one-another, that the separations we uncritically accept are illusory, and that the entire universe, instead of being a sum, is the only genuine unit in existence, constituting (in the words often quoted from d'Alembert) '*un seul fait et une grande vérité.*'

The alternative here is known as that between pluralism and monism. It is the most pregnant of all the dilemmas of philosophy, although it is only in our time that it has been articulated distinctly. Does reality exist distributively? or collectively? — in the shape of *eaches, everys, anys, eithers?* or only in the shape of an *all* or *whole?* An identical content is compatible with either form obtaining, the Latin *omnes*, or *cuncti*, or the German *alle* or *sämmtliche* expressing the alternatives familiarly. Pluralism stands for the distributive, monism for the collective form of being.

erally kept itself vague and mystical as regards the ultimate principle of unity. To be One is more wonderful than to be many, so the principle of things must be One, but of that One no exact account is given. Plotinus simply calls it the One. 'The One is all things and yet no one of them. . . . For the very reason that none of them was in the One, are all derived from it. Furthermore, in order that they may be real existences, the One is not an existence, but the father of existences. And the generation of existence is as it were the first act of generation. Being perfect by reason of neither seeking nor possessing nor needing anything, the One overflows, as it were, and what overflows forms another hypostasis. . . . How should the most perfect and primal good stay shut up in itself as if it were envious or impotent? . . . Necessarily then something comes from it.'[1]

Kinds of monism

Mystical monism

This is like the Hindoo doctrine of the Brah-

[1] Compare the passages in C. M. Bakewell's *Source-Book in Ancient Philosophy*, pp. 363–370, or the first four books of the Vth Ennead generally, in F. Bouillier's translation.

mon men. Thus Porphyry, in his life of Plotinus, after saying that he himself once had such an insight, when 68 years old, adds that whilst he lived with Plotinus, the latter four times had the happiness of approaching the supreme God and consciously uniting with him in a real and ineffable act.

The regular mystical way of attaining the vision of the One is by ascetic training, fundamentally the same in all religious systems. But this ineffable kind of Oneness is not strictly philosophical, for philosophy is essentially talkative and explicit, so I must pass it by.

The usual philosophic way of reaching deeper oneness has been by the conception of substance. First used by the Greeks, this notion

aright and the leader astray; he does what he wills and decides what he wishes; there is no opposer of his decision and no repeller of his decree. He created the Garden, and created for it a people, then used them in obedience. And he created the Fire, and created for it a people, then used them in rebellion. . . . Then he said, as has been handed down from the Prophet: "These are in the Garden, and I care not; and these are in the Fire, and I care not." So he is Allah, the Most High, the King, the Reality. He is not asked concerning what he does; but they are asked.' (D. B. MacDonald's translation, in *Hartford Seminary Record*, January, 1910.) Compare for other quotations, W. James: *The Varieties of Religious Experience*, pp. 415–422.

Spinoza broke away from the scholastic doctrine. He began his 'Ethics' by demonstrating that only one substance is possible, and that that substance can only be the infinite and necessary God.[1] This heresy brought reproba-

[1] Spinoza has expressed his doctrine briefly in part i of the Appendix to his *Ethics:* 'I have now explained,' he says, 'the nature of God, and his properties; such as that he exists necessarily; that he is unique; that what he is and does flows from the sole necessity of his nature; that he is the free cause of all things whatever; that all things are in God and depend on him in such wise that they can neither be nor be conceived without him; and finally, that all things have been predetermined by God, not indeed by the freedom of his will, or according to his good pleasure, but in virtue of his absolute nature or his infinite potentiality.' — Spinoza goes on to refute the vulgar notion of *final causes.* God pursues no ends — if he did he would lack something. He acts out of the logical necessity of the fulness of his nature. — I find another good monistic statement in a book of the spinozistic type: — '. . . The existence of every compound object in manifestation does not lie in the object itself, but lies in the universal existence which is an absolute unit, containing in itself all that is manifested. All the particularized beings, therefore, . . . are incessantly changing one into the other, coming and going, forming and dissolving through the one universal cause of the *potential universe,* which is the absolute unit of universal existence, depending on the one general law, the one mathematical bond, which is the absolute being, and it changes not in all eternity. Thus, . . . it is the universe as a whole, *in its potential being,* from which the physical universe is individualized; and its being is a mathematical inference from a mathematical or an intellectual universe which was and ever is previously formed by an intellect standing and existing by itself. This mathematical or intellectual universe I call Absolute Intellectuality, the God of the Universe.'

(Solomon J. Silberstein: *The Disclosures of the Universal Mysteries,* New York, 1906, pp. 12–13.)

ness in our different minds. *Experientially*, our personal identity consists, he said, in nothing more than the functional and perceptible fact that our later states of mind continue and remember our earlier ones.[1]

Berkeley applied the same sort of criticism to the notion of bodily substance. 'When I consider,' he says, 'the two parts ("being" in general, and "supporting accidents") which make the signification of the words "material substance," I am convinced there is no distinct meaning annexed to them. . . . Suppose an intelligence without the help of external bodies to be affected with the same train of sensations that you are, imprinted in the same order, and with like vividness in his mind. I ask whether that intelligence hath not all the reason to believe the existence of corporeal substances, represented by his ideas, and exciting them in his mind, that you can possibly have for believing the same thing.'[2] Certain *grouped sensations*, in short, are all that corporeal sub-

[1] Ibid., book ii, chap. xxvii, §§ 9–27.

[2] *Principles of Human Knowledge*, part i, §§ 17, 20.

assigned them by which we are able to recall that collection.'[1] Kant's treatment of substance agrees with Hume's in denying all positive content to the notion. It differs in insisting that, by attaching shifting percepts to the permanent name, the category of substance unites them *necessarily* together, and thus makes nature intelligible.[2] It is impossible to assent to this. The grouping of qualities becomes no more intelligible when you call substance a 'category' than when you call it a bare word.

Pragmatic analysis of oneness

Let us now turn our backs upon ineffable or unintelligible ways of accounting for the world's oneness, and inquire whether, instead of being a principle, the 'oneness' affirmed may not merely be a name like 'substance,' descriptive of the fact that certain *specific and verifiable connections* are found among the parts of the experiential flux. This

[1] *Treatise on Human Nature*, part 1, § 6.

[2] *Critique of Pure Reason:* First Analogy of Experience. For further criticism of the substance-concept see J. S. Mill: *A System of Logic*, book i, chap. iii, §§ 6–9; B. P. Bowne: *Metaphysics*, part 1, chap. i. Bowne uses the words being and substance as synonymous.

prehensible. We must seek something better in the way of oneness than this susceptibility of being mentally considered together, and named by a collective noun.

What connections may be perceived concretely or in point of fact, among the parts of the collection abstractly designated as our 'world'?

There are innumerable modes of union among its parts, some obtaining on a larger, some on a smaller scale. Not all the parts of our world are united *mechanically*, for some can move without the others moving. They all seem united by *gravitation*, however, so far as they are material things. Some again of these are united *chemically*, while others are not; and the like is true of thermic, optical, electrical, and other *physical* connections. These connections are specifications of what we mean by the word oneness when we apply it to our world. We should not call it one unless its parts were connected in these and other ways. But then it is clear that by the same logic we ought to call it 'many.' so far as

Kinds of oneness

more to be called 'one' or 'many' in this spatial or temporal regard.

The like is true of the *generic oneness* which comes from so many of the world's parts being similar. When two things are similar you can make inferences from the one which will hold good of the other, so that this kind of union among things, so far as it obtains, is inexpressibly precious from the logical point of view. But an infinite heterogeneity among things exists alongside of whatever likeness of kind we discover; and our world appears no more distinctly or essentially as a One than as a Many, from this generic point of view.

We have touched on the noetic unity predicable of the world in consequence of our being able to mean the whole of it at once. Widely different from unification by an abstract designation, would be the concrete noetic union wrought by an all-knower of perceptual type who should be acquainted at one stroke with every part of what exists. In such an absolute all-knower idealists believe. Kant, they say, virtually replaced the notion of Substance,

next, is altogether different from the 'consolidated' knowing supposed to be exercised by the absolute mind. It makes a coherent type of universe in which the widest knower that exists may yet remain ignorant of much that is known to others.

There are other systems of concatenation besides the noetic concatenation. We ourselves are constantly adding to the connections of things, organizing labor-unions, establishing postal, consular, mercantile, railroad, telegraph, colonial, and other systems that bind us and things together in ever wider reticulations. Some of these systems involve others, some do not. You cannot have a telephone system without air and copper connections, but you can have air and copper connections without telephones. You cannot have love without acquaintance, but you can have acquaintance without love, etc. The same thing, moreover, can belong to many systems, as when a man is connected with other objects by heat, by gravitation, by love, and by knowledge.

or in atoms all equally old. There is no real novelty, it is believed, in the universe, the new things that appear having either been eternally prefigured in the absolute, or being results of the same *primordia rerum*, atoms, or monads, getting into new mixtures. But the question of being is so obscure anyhow, that whether realities have burst into existence all at once, by a single 'bang,' as it were; or whether they came piecemeal, and have different ages (so that real novelties may be leaking into our universe all the time), may here be left an open question, though it is undoubtedly intellectually economical to suppose that all things are equally old, and that no novelties leak in.

Unity of origin

These results are what the Oneness of the Universe is *known-as*. They *are* the oneness, pragmatically considered. A world coherent in any of these ways would be no chaos, but a universe of such or such a grade. (The grades might differ, however. The parts, e. g., might have space-relations, but nothing more; or they might also gravitate; or

Summary

the question of the One or the Many may well cease to appear important. The amount either of unity or of plurality is in short only a matter for observation to ascertain and write down, in statements which will have to be complicated, in spite of every effort to be concise.

belong together, instead of being connected by the bare conjunctions 'with' or 'and.' The notion that this latter pluralistic arrangement may obtain is deemed 'irrational'; and of course it does make the world partly alogical or non-rational from a purely intellectual point of view.

The value of absolute oneness

Monism thus holds the oneness to be the more vital and essential element. The entire cosmos must be a consolidated unit, within which each member is determined by the whole to be just that, and from which the slightest incipiency of independence anywhere is ruled out. With Spinoza, monism likes to believe that all things follow from the essence of God as necessarily as from the nature of a triangle it follows that the angles are equal to two right angles. The whole is what yields the parts, not the parts the whole. The universe is *tight*, monism claims, not loose; and you must take the irreducible whole of it just as it is offered, or have no part or lot in it at all. The only alternative allowed by monistic writers is to confess the

cept unconditionally carried out, it introduces into philosophy puzzles peculiar to itself, as follows: —

Its defects

1. It does not account for our finite consciousness. If nothing exists but as the Absolute Mind knows it, how can anything exist otherwise than as that Mind knows it? That Mind knows each thing in one act of knowledge, along with every other thing. Finite minds know things without other things, and this ignorance is the source of most of their woes. We are thus not simply objects to an all-knowing subject: we are subjects on our own account and know differently from its knowing.

2. It creates a problem of evil. Evil, for pluralism, presents only the practical problem of how to get rid of it. For monism the puzzle is theoretical: How — if Perfection be the source, should there be Imperfection? If the world as known to the Absolute be perfect, why should it be known otherwise, in myriads of inferior finite editions also? The perfect edition surely was enough. How do the breakage and dispersion and ignorance get in?

addable in one shape *or* another, so that the next turn in events can at any given moment genuinely be ambiguous, i. e., possibly this, but also possibly that.

Monism rules out this whole conception of possibles, so native to our common-sense. The future and the past are linked, she is obliged to say; there can be no genuine novelty anywhere, for to suppose that the universe has a constitution simply additive, with nothing to link things together save what the words 'plus,' 'with,' or 'and' stand for, is repugnant to our reason.

Pluralism, on the other hand, taking perceptual experience at its face-value, is free from all these difficulties. It protests against working our ideas in a vacuum made of conceptual abstractions. Some parts of our world, it admits, cannot exist out of their wholes; but others, it says, can. To some extent the world *seems* genuinely additive: it may really be so. We cannot explain conceptually *how* genuine novelties can come; but if one did come we could experience *that* it came.

The pluralistic theory

A world working out an uncertain destiny, as the phenomenal world appears to be doing, is an intolerable idea to the rationalistic mind.

Its defects

Pluralism, on the other hand, is neither optimistic nor pessimistic, but melioristic, rather. The world, it thinks, may be saved, on condition that its parts shall do their best. But shipwreck in detail, or even on the whole, is among the open possibilities.

There is thus a practical lack of balance about pluralism, which contrasts with monism's peace of mind. The one is a more moral, the other a more religious view; and different men usually let this sort of consideration determine their belief.[1]

So far I have sought only to show the respective implications of the rival doctrines without dogmatically deciding which is the more true. It is obvious that pluralism has three great advantages:—

Its advantages

1. It is more 'scientific,' in that it insists

[1] See, as to this religious difference, the closing lecture in W. James's *Pragmatism*.

So far has our use of the pragmatic rule brought us towards understanding this dilemma. The reader will by this time feel for himself the essential practical difference which it involves. The word 'absence' seems to indicate it. The monistic principle implies that nothing that is can in any way whatever be absent from anything else that is. The pluralistic principle, on the other hand, is quite compatible with some things being absent from operations in which other things find themselves singly or collectively engaged. *Which* things are absent from which other things, and *when*, — these of course are questions which a pluralistic philosophy can settle only by an exact study of details. The past, the present, and the future in perception, for example, are absent from one another, while in imagination they are present or absent as the case may be. If the time-content of the world be not one monistic block of being, if some part, at least, of the future, is-added to the past without being virtually one therewith, or implicitly contained therein, then it is absent really as well

at once or beg it bit by bit or in instalments. The latter is the more consistently empiricist view, and I shall begin to defend it in the chapter that follows.

ferent.' Time keeps budding into new moments, every one of which presents a content which in its individuality never was before and will never be again. Of no concrete bit of experience was an exact duplicate ever framed. 'My youth,' writes Delbœuf, 'has it not taken flight, carrying away with it love, illusion, poetry, and freedom from care, and leaving with me instead science, austere always, often sad and morose, which sometimes I would willingly forget, which repeats to me hour by hour its grave lessons, or chills me by its threats? Will time, which untiringly piles deaths on births, and births on deaths, ever remake an Aristotle or an Archimedes, a Newton or a Descartes? Can our earth ever cover itself again with those gigantic ferns, those immense equisetaceans, in the midst of which the same antediluvian monsters will crawl and wallow as they did of yore? . . . No, what has been will not, cannot, be again. Time moves on with an unfaltering tread, and never strikes twice an identical hour. The instants of which the existence of the world is composed are all

Perceptual novelty

So far as physical nature goes few of us experience any temptation to postulate real novelty. The notion of eternal elements and their mixture serves us in so many ways, that we adopt unhesitatingly the theory that primordial being is inalterable in its attributes as well as in its quantity, and that the laws by which we describe its habits are uniform in the strictest mathematical sense. These are the absolute conceptual foundations, we think,

died 370 B. C. His life overlapped that of Aristotle, who took what on the whole may be called a biological view of the world, and for whom 'forms' were as real as elements. The conflict of the two modes of explanation has lasted to our day, for some chemists still defend the Aristotelian tradition which the authority of Descartes had interrupted for so long, and deny our right to say that 'water' is not a simple entity, or that oxygen and hydrogen atoms persist in it unchanged. Compare W. Ostwald: *Die Ueberwindung des wissenschaftlichen Materialismus* (1895), p. 12. 'The atomistic view assumes that when in iron-oxide, for example, all the sensible properties both of iron and oxygen have vanished, iron and oxygen are nevertheless there but now manifest other properties. We are so used to this assumption that it is hard for us to feel its oddity, nay, even its absurdity. When, however, we reflect that all we know of a given kind of matter is its properties, we realize that the assertion that the matter is still there, but without any of those properties, is not far removed from nonsense.' Compare the same author's *Principles of Inorganic Chemistry*, English translation, 2d ed. (1904), p. 149 f. Also P. Duhem: 'La Notion de Mixte,' in the *Revue de Philosophie*, vol. i, pp. 452 ff. (1901). — The whole notion of the eternal fixity of elements is melting away before the new discoveries about radiant matter. See for radical statements G. Le Bon: *L'Évolution de la Matière*.

ments, or to say that they belong to ancient kinds, so long as no one of them in its full individuality ever was here before or will ever come again. Men of science and philosophy, the moment they forget their theoretic abstractions, live in their biographies as much as any one else, and believe as naïvely that fact even now is making, and that they themselves, by doing 'original work,' help to determine what the future shall become.

I have already compared the live or perceptual order with the conceptual order from this point of view. Conception knows no way of explaining save by deducing the identical from the identical, so if the world is to be conceptually rationalized no novelty can really come. This is one of the traits in that general bankruptcy of conceptualism, which I enumerated in Chapter V — conceptualism can *name* change and growth, but can translate them into no terms of its own, and is forced to contradict the indestructible sense of life within us by denying that reality grows.

It may seem to the youthful student a rather

CHAPTER X

NOVELTY AND THE INFINITE—THE CONCEPTUAL VIEW[1]

THE problem is as to which is the more rational supposition, that of continuous or that of discontinuous additions to whatever amount or kind of reality already exists.

The discontinuity-theory

On the discontinuity-theory, time, change, etc., would grow by finite buds or drops, either nothing coming at all, or certain units of amount bursting into being 'at a stroke.' Every feature of the universe would on this view have a finite numerical constitution. Just as atoms, not half- or quarter-atoms are the minimum of matter that can be, and every finite amount of matter contains a finite number of atoms, so any amounts of time, space, change, etc., which we might assume would be composed of a finite number of minimal amounts of time, space, and change.

Such a discrete composition is what actually

[1] [In the author's manuscript this chapter and the succeeding chapters were labelled 'sub-problems,' and this chapter was entitled 'The Continuum and the Infinite.' ED.]

halves must themselves have halves, and so on *ad infinitum*, so that with the notion that the constitution of things is continuous and not discrete, that of a divisibility *ad infinitum* is inseparably bound up. This infinite divisibility of some facts, coupled with the infinite expansibility of others (space, time, and number) has given rise to one of the most obstinate of philosophy's dialectic problems. Let me take up, in as simple a way as I am able to, the *problem of the infinite.*

There is a pseudo-problem, 'How can the finite know the infinite?' which has troubled some English heads.[1] But one might as well make a problem of 'How can the fat know the lean?' When we come to treat of knowledge, such problems will vanish. The real problem of the infinite began with the famous arguments against motion, of Zeno the Eleatic. The school of Pythagoras was pluralistic. 'Things are numbers,' the master had said, meaning apparently that reality was made of

[1] In H. Calderwood's *Philosophy of the Infinite* one will find the subordinate difficulties discussed, with almost no consciousness shown of the important ones.

ously form a convergent series of distances from the starting point of Achilles. Measured in inches, these distances would run as follows:

$$1+\tfrac{1}{2}+\tfrac{1}{4}+\tfrac{1}{8}+\tfrac{1}{16}\cdots\cdots+\tfrac{1}{n}\cdots\cdots\tfrac{1}{\infty}$$

Zeno now assumes that space must be infinitely divisible. But if so, then the number of points to be occupied cannot all be enumerated in succession, for the series begun above is interminable. Each time that Achilles gets to the tortoise's last point it is but to find that the tortoise has already moved to a further point; and although the interval between the points quickly grows infinitesimal, it is mathematically impossible that the two racers should reach any one point at the same moment. If Achilles could overtake the tortoise, it would be at the end of two inches; and if his speed were two inches a second, it would be at the end of the first second;[1] but the argument shows that he simply cannot overtake the animal. To do so would oblige him to exhaust,

[1] This shows how shallow is that common 'exposure' of Zeno's 'sophism,' which charges it with trying to prove that to overtake the tortoise, Achilles would require an infinitely long time.

determinate existence may be regarded as an axiom in ontology. We may be dim as to just how many stars we see in the Pleiades, or doubtful whose count to believe regarding them; but seeing and belief are subjective affections, and the stars by themselves, we are sure, exist in definite numbers. 'Even the hairs of our head are numbered,' we feel certain, though no man shall ever count them.[1] Any existent reality, taken in itself, must therefore be countable, and to any group of such realities some definite number must be applicable.

Kant's antinomies

2. Kant defines infinity as 'that which can never be completely measured by the successive addition of units' — in other words, as that which defies complete enumeration.

3. Kant lays it down as axiomatic that if anything is 'given,' as an existent reality, the whole sum of the 'conditions' required to account for it must similarly be given, or have been given. Thus if a cubic yard of space be

[1] Of the origin in our experience of this singularly solid postulate, I will say nothing here.

Such was the form of the puzzle of the infinite, as Kant propounded it. The reader will observe a bad ambiguity in the statement. When he speaks of the 'absolute totality of the synthesis' of the conditions, the words suggest that a completed collection of them must exist or have existed. When we hear that 'the whole sum of them must be given,' we interpret it to mean that they must be given in the form of a whole sum, whereas all that the logical situation requires is that *no one of them should be lacking*, an entirely different demand, and one that can be gratified as well in an infinitely growing as in a terminated series. The same things can always be taken either collectively or distributively, can be talked of either as 'all,' or as 'each,' or as 'any.' Either statement can be applied equally well to what exists in finite

Ambiguity of Kant's statement of the problem

world without end. It does not mean that what we go on thus to represent shall have been there already by itself, apart from our acts of representation. Experience, for idealism, thus falls into two parts, a phenomenal given part which is finite, and a conditioning infinite part which is not given, but only possible to experience hereafter. Kant distinguishes this second part, as only *aufgegeben* (or set to us as a task), from the first part as *gegeben* (or already extant).

merical determinateness of reality (supra, page 160) — the '*principe du nombre*,' as he called it — and recognizing that the series of numbers 1, 2, 3, 4, . . . etc., leads to no final 'infinite' number, he concluded that such realities as present beings, past events and causes, steps of change and parts of matter, must needs exist in limited amount. This made of him a radical pluralist. Better, he said, admit that being gives itself to us abruptly, that there are first beginnings, absolute numbers, and definite cessations, however intellectually opaque to us they may seem to be, than try to rationalize all this arbitrariness of fact by working-in explanatory conditions which would involve in every case the self-contradiction of things being paid-in and completed, although they are infinite in formal composition.

Renouvier's solution

With these principles, Renouvier could believe in absolute novelties, unmeditated beginnings, gifts, chance, freedom, and acts of faith. Fact, for him, overlapped; conceptual explanation fell short; real-

His solution favors novelty

CHAPTER XI[1]

NOVELTY AND THE INFINITE — THE PERCEPTUAL VIEW

KANT'S and Renouvier's dealings with the infinite are fine examples of the way in which philosophers have always been wont to infer matters of fact from conceptual considerations. Real novelty would be a matter of fact; and so would be the idealistic constitution of experience;[2] but Kant and Renouvier deduce these facts from the purely logical impossibility of an infinite number of conditions getting completed. It seems a very short cut to truth; but if the logic holds firm, it may be a fair cut,[3] and the possibility obliges us to scrutinize the situation with increasing care. Proceeding so

[1] [This chapter was not indicated as a separate chapter in the manuscript. ED.]

[2] For an account of idealism the reader is referred to chapter below. [Never written. ED.]

[3] Let me now say that we shall ourselves conclude that change completed by steps infinite in number is inadmissible. This is hardly inferring fact from conceptual considerations, it is only concluding that a certain conceptual hypothesis regarding the fact of change will not work satisfactorily. The field is thus open for any other hypothesis; and the one which we shall adopt is simply that which the face of perceptual experience suggests.

oblige the whole class 'star' to be of one number rather than of another, or require it to be of any terminated number. What I say here of stars applies to the component parts of space and matter, and to those of past time.[1]

So long as we keep taking such facts piecemeal, and talk of them distributively as 'any' or 'each,' the existence of them in infinite form offers no logical difficulty. But there is a psychological tendency to slip from the distributive to the collective way of talking, and this produces a sort of mental flicker and dazzle out of which the dialectic difficulties emerge. 'If each condition be there,' — we say, 'then all are there, for there cannot

Its pragmatic definition

[1] Past time may offer difficulty to the student as it has to better men! It has terminated in the present moment, paid itself out and made an 'amount.' But this amount can be counted in both directions; and in both, one may think it ought to give the same result. If, when counted forward, it came to an end in the present, then when counted backward, it must, we are told, come to a like end in the past. It must have had a beginning, therefore, and its amount must be finite. The sophism here is gross, and amounts to saying that what has one bound must have two. The 'end' of the forward counting *is* the 'beginning' of the backward counting, and is the *only* beginning logically implied. The ending of a series in no way prejudices the question whether it were beginningless or not; and this applies as well to tracts of time as to the abstract regression which 'negative' numbers form.

absolutely too big to be; but that some amounts are too big for our imagination to wish to caress them. So we fall back with a feeling of relief on some form or other of the finitist hypothesis.[1]

If now we turn from static to growing forms of being, we find ourselves confronted by much more serious difficulties. Zeno's and Kant's dialectic holds good wherever, before an end can be reached, a succession of terms, endless by definition, must needs have been *successively* counted out. This is the case with every process of change, however small; with every event which we conceive as unrolling itself continuously. What is continuous must be divisible *ad infinitum;* and from division to division here you cannot proceed by addition (or by what Kant calls the succes-

The growing infinite

[1] The reader will note how emphatically in all this discussion, I am insisting on the distributive or piecemeal point of view. The distributive is identical with the pluralistic, as the collective is with the monistic conception. We shall, I think, perceive more and more clearly as this book proceeds, that *piecemeal existence is independent of complete collectibility*, and that some facts, at any rate, exist only distributively, or in form of a set of eaches which (even if in infinite number) need not in any intelligible sense either experience themselves, or get experienced by anything else, as members of an All.

sophic imagination, but for any real agent who might try physically to compass the entire performance. Such an agent is bound by logic to find always a remainder, something ever yet to be paid, like the balance due on a debt with even the interest of which we do not catch up.

'*Infinitum in actu pertransiri nequit*,' said scholasticism; and every continuous quantum to be gradually traversed is conceived as such an infinite. The quickest way to avoid the contradiction would seem to be to give up that conception, and to treat real processes of change no longer as being continuous, but as taking place by finite not infinitesimal steps, like the successive drops by which a cask of water is filled, when whole drops fall into it at once or nothing. This is the radically pluralist, empiricist, or perceptualist position, which I characterized in speaking of Renouvier (above, pages 164–165). We shall have to end by adopting it in principle ourselves, qualifying it so as to fit it closely to perceptual experience.

The growing infinite must be treated as discontinuous

line in space, and halve its halves and so on. But between the cuts thus made and numbered, room is left for infinite others created by using 3 as a divisor, for infinite others still by using 5, 7, etc., until all possible 'rational' divisions of the line shall have been made. Between these it is now shown that interpolation of cuts numbered 'irrationally' is still possible *ad infinitum*, and that with these the line at last gets filled *full*, its continuity now being wholly translated into these numbered cuts, and their number being infinite. 'Of the celebrated formula that continuity means "unity in multiplicity," the multiplicity alone subsists, the unity disappears,'[1] — as indeed it does in all conceptual translations — and the original intuition of the line's extent gets treated, from the mathematical point of view, as a 'mass of uncriticized prejudice' by Russell, or sneered at by Cantor as a 'kind of religious dogma.'[2]

So much for the number-continuum. As for 'the new infinite': that means only a new defi-

[1] H. Poincaré: *La science et l'hypothese*, p. 30.

[2] B. Russell: *The Philosophy of Mathematics*, i, 260, 287.

the even numbers thus produced cannot in the nature of things be less multitudinous than that series of both odd and even numbers of which the whole natural series consists.

These paradoxical consequences result, as one sees immediately, from the fact that the infinity of the number-series is of the 'growing' variety (above, page 170). They were long treated as a *reductio ad absurdum* of the notion that such a variable series spells infinity in act, or can ever be translated into standing or collective form.[1] But contemporary mathematicians have taken the bull by the horns. Instead of treating such paradoxical properties of indefinitely growing series as *reductiones ad absurdum*, they have turned them into the proper definition of infinite classes of things. Any class is now called

The new infinite paradoxical

[1] The fact that, taken distributively, or paired each to each, the terms in one endlessly growing series should be made a match for those in another (or 'similar' to them) is quite compatible with the two series being collectively of vastly unequal amounts. You need only make the steps of difference, or distances, between the terms much longer in one series than in the other, to get numerically similar multitudes, with greatly unequal magnitudes of content. Moreover the moment either series should stop growing, the 'similarity' would cease to exist.

ing could not terminate. Or again it would be the number of miles away at which parallel lines meet — if they do meet. It is, in short, a 'limit' to the whole class of numbers that grow one by one, and like other limits, it proves a useful conceptual bridge for passing us from one range of facts to another.

Their uses and defects

The first sort of fact we pass to with its help is the number of the number-continuum or point-continuum described above (page 173) as generated by infinitely repeated subdivision. The making of the subdivisions is an infinitely growing process; but the number of subdivisions that can be made has for its limit the transfinite number Omega just imagined and defined; thus is a growing assimilated to a standing multitude; thus is a number that is variable practically equated (by the process of passing to the limit) with one that is fixed; thus do we circumvent the law of indefinite addition, or division which previously was the only way in which infinity was constructable, and reach a constant infinite at a bound. This infinite number may now be sub-

paths traversed by the two runners (measured after the race is run, and assumed then to consist of nothing but points of position coincident with points upon a common scale of time) should have the same time-measure if they be not themselves of the same length. But the two paths are of different lengths; for owing to the tortoise's head-start, the tortoise's path is only a part of the path of Achilles. How, then, if time-points are to be the medium of measurement, can the longer path *not* take the longer time?

Russell's solution of Zeno's paradox by their means

The remedy, for Mr. Russell, if I rightly understand him, lies in noting that the sets of points in question are conceived as being infinitely numerous in both paths, and that where infinite multitudes are in question, to say that the whole is greater than the part is false. For each and every point traversed by the tortoise there is one point traversed by Achilles, at the corresponding point of time; and the exact correspondence, point by point, of either one of the three sets of points with

called physical, for it attends the process of *formation* of the paths. Moreover, two paths are not needed — that of either runner alone, or even the lapse of empty time, involves the difficulty, which is that of touching a goal when an interval needing to be traversed first keeps permanently reproducing itself and getting in your way. Of course the same quantum can be produced in various manners. This page which I am now painfully writing, letter after letter, will be printed at a single stroke. God, as the orthodox believe, created the space-continuum, with its infinite parts already standing in it, by an instantaneous *fiat*. Past time now stands in infinite perspective, and may conceivably have been created so, as Kant imagined, for our retrospection only, and all at once. 'Omega' was created by a single decree, a single act of definition in Prof. Cantor's mind. But whoso actually *traverses* a continuum, can do so by no process continuous in the mathematical sense. Be it short or long, each point must be occupied in its due order of succession; and if the points are necessarily

After this disagreeable polemic, I conclude that the new infinite need no longer block the way to the empiricist opinion which we reached provisionally on page 172. Irrelevant though they be to facts the 'conditions' of which are of the 'standing' sort, the criticisms of Leibnitz, Kant, Cauchy, Renouvier, Evellin and others, apply legitimately to all cases of supposedly continuous growth or change. The 'conditions' here have to be fulfilled seriatim; and if the series which they form were endless, its limit, if 'successive synthesis' were the only way of reaching it, could simply not be reached. Either we must

Conclusions

A still more rigorous exposition may be found in E. V. Huntington, *The Continuum as a Type of Order*, in the *Annals of Mathematics*, vols. vi and vii (reprint for sale at publication-office, Harvard University). Compare also C. S. Peirce's paper in the *Monist*, ii, 537–546, as well as the presidential address of E. W. Hobson in the *Proceedings of the London Mathematical Society*, vol. xxxv. For more popular discussions see J. Royce, *The World and the Individual*, vol. i, Supplementary Essay; Keyser: *Journal of Philosophy*, etc., i, 29, and *Hibbert Journal*, vii, 880–890; S. Waterton in *Aristotelian Soc. Proceedings*, 1910; Leighton: *Philosophical Review*, xiii, 497; and finally the tables of contents of H. Poincaré's three recent little books, *La science et l'hypothèse*, Paris; *The Value of Science* (authorized translation by G. B. Halsted), New York, 1907; *Science et Méthode*, Paris, 1908. The liveliest short attack which I know upon infinites completed by successive synthesis, is that in G. M. Fullerton's *System of Metaphysics*, chapter xi.

which an onlooking intellect fails to understand; but that being should be identified with the consummation of an endless chain of units (such as 'points'), no one of which contains any amount whatever of the being (such as 'space') expected to result, this is something which our intellect not only fails to understand, but which it finds absurd. The substitution of 'arithmetization' for intuition thus seems, if taken as a description of reality, to be only a partial success. Better accept, as Renouvier says, the opaquely given data of perception, than concepts inwardly absurd.[1]

[1] The point-continuum illustrates beautifully my complaint that the intellectualist method turns the flowing into the static and discrete. The buds or steps of process which perception accepts as primal gifts of being, correspond logically to the 'infinitesimals' (minutest *quanta* of notion, change or what not) of which the latest mathematics is supposed to have got rid. Mr. Russell accordingly finds himself obliged, just like Zeno, to treat motion as an unreality: 'Weierstrass,' he says, 'by strictly banishing all infinitesimals has at last shown that we live in an unchanging world, and that the arrow, at every moment of its flight, is truly at rest' (*op. cit.*, p. 347). 'We must entirely reject the notion of a state of motion,' he says elsewhere; 'motion consists merely in the occupation of different places at different times. . . . There is no transition from place to place, no consecutive moment, or consecutive position, no such thing as velocity except in the sense of a real number which is the limit of a certain set of quotients' (p. 473). The mathematical 'continuum,' so called, becomes thus an absolute discontinuum in any physical or experiential sense. Ex-

Our business lies hereafter with the perceptual account, but before we settle definitively to its discussion, another classic problem of philosophy had better be got out of the way. This is the 'problem of causation.'

taken to mean that the effect in some way already exists in the cause. If this be so, the effect cannot be absolutely novel, and in no radical sense can pluralism be true.

We must therefore review the facts of causation. I take them in conceptual translation before considering them in perceptual form. The first definite inquiry into causes was made by Aristotle.[1]

Aristotle on causation

The 'why' of anything, he said, is furnished by four principles: the material cause of it (as when bronze makes a statue); the formal cause (as when the ratio of two to one makes an octave); the efficient cause (as when a father makes a child) and the final cause (as when one exercises for the sake of health). Christian philosophy adopted the four causes; but what one generally means by the cause of anything is its 'efficient' cause, and in what immediately follows I shall speak of that alone.

An efficient cause is scholastically defined as

[1] Book 2, or book 5, chap. ii of his *Metaphysics*, or chap. iii of his *Physics*, give what is essential in his views.

when one motion causes another motion; virtually means that the cause somehow involves that effect, without resembling it, as when an artist causes a statue but possesses not himself its beauty; 'eminently' means that the cause, though unlike the effect, is superior to it in perfection, as when a man overcomes a lion's strength by greater cunning.)

Nemo dat quod non habet is the real principle from which the causal philosophy flows; and the proposition *causa æquat effectum* practically sums up the whole of it.[1]

It is plain that each moment of the universe must contain all the causes of which the next moment contains effects, or to put it with extreme concision, it is plain that each moment in its totality causes the next moment.[2] But

[1] Read for a concise statement of the school-doctrine of causation the account in J. Rickaby: *General Metaphysics*, book 2, chap. iii. I omit from my text various subordinate maxims which have played a great part in causal philosophy, as 'The cause of a cause is the cause of its effects'; 'The same causes produce the same effects'; 'Causes act only when present'; 'A cause must exist before it can act,' etc.

[2] This notion follows also from the consideration of conditioning circumstances being at bottom as indispensable as causes for producing effects. 'The cause, philosophically speaking, is the sum total of the conditions positive and negative,' says J. S. Mill (*Logic*, 8th edition, i.

must be generically one, in spite of the perceptual appearances; and causation changes thus from a concretely experienced relation between differents into one between similars abstractly thought of as more real.[1]

The overthrow of perception by conception took a long time to complete itself in this field.

Occasionalism

The first step was the theory of 'occasionalism,' to which Descartes led the way by his doctrine that mental and physical substance, the one consisting purely of thought, the other purely of extension, were absolutely dissimilar. If this were so, any such causal intercourse as we instinctively perceive between mind and body ceased to be rational.

[1] Sir William Hamilton expresses this very compactly: 'What is the law of Causality? Simply this, — that when an object is presented phenomenally as commencing, we cannot but suppose that the complement (i. e. the amount) of existence, which it now contains, has previously been; — in other words, that all that we at present know as an effect must previously have existed in its causes; though what these causes are we may perhaps be altogether unable to surmise.' (End of Lecture 39 of the *Metaphysics*.) The cause becomes a reason, the effect a consequence; and since logical consequence follows only from the same to the same, the older vaguer causation-philosophy develops into the sharp rationalistic dogma that cause and effect are two names for one persistent being, and that if the successive moments of the universe be causally connected, no genuine novelty leaks in.

complete. Instead of the dramatic flux of personal life, a bare 'one to one correspondence' between the terms of two causally unconnected series is set up. God is the sole cause of anything, and the cause of everything at once. The theory is as monistic as the rationalist heart can desire, and of course novelty would be impossible if it were true.

David Hume made the next step in discrediting common-sense causation. In the chapters on 'the idea of necessary connection' both in his 'Treatise on Human Nature,' and in his 'Essays,' he sought for a positive picture of the 'efficacy of the power' which causes are assumed to exert, and failed to find it. He shows that neither in the physical nor in the mental world can we abstract or isolate the 'energy' transmitted from causes to effects. This is as true of perception as it is of imagination. 'All ideas are derived from and represent impressions. We never have any impression that contains any power or efficacy. We never therefore have any idea of power.' 'We never can by our utmost scrutiny discover anything

Hume

sary connection. Nothing farther is in the case.' 'A cause is an object precedent and contiguous to another, and so united with it that the idea of the one determines the idea of the other.'

Nothing could be more essentially pluralistic than the elements of Hume's philosophy. He makes events rattle against their neighbors as drily as if they were dice in a box. He might with perfect consistency have believed in real novelties, and upheld freewill. But I said awhile ago that most empiricists had been half-hearted; and Hume was perhaps the most half-hearted of the lot. In his essay 'on liberty and necessity,' he insists that the sequences which we experience, though between events absolutely disconnected, are yet absolutely uniform, and that nothing genuinely new can flower out of our lives.

Criticism of Hume

The reader will recognize in Hume's famous pages a fresh example of the way in which conceptual translations always maltreat fact. Perceptually or concretely (as we shall notice in more detail later)causation names the manner in which some fields of con-

Concepts are notes, views taken on reality,[1] not pieces of it, as bricks are of a house. Causal activity, in short, may play its part in growing fact, even though no substantive 'impression' of it should stand out by itself. Hume's assumption that any factor of reality must be separable, leads to his preposterous view, that no relation can be real. 'All events,' he writes, 'seem entirely loose and separate. One event follows another, but we never can observe any tie between them. They seem conjoined, but never connected.' Nothing, in short, belongs with anything else. Thus does the intellectualist method pulverize perception and triumph over life. Kant and his successors all espoused Hume's opinion that the immediately given is a disconnected 'manifold.' But unwilling simply to accept the manifold, as Hume did, they invoked a superior agent in the shape of what Kant called the 'transcendental ego of apperception' to patch its bits together by synthetic 'categories.' Among these categories Kant inscribes that of 'causality,' and in many quar-

[1] These expressions are Bergson's.

The word *Verstand* in Kant's account must not be taken as if the rule it is supposed to set to sensation made us understand things any better. It is a brute rule of sequence which reveals no 'tie.' The non-rationality of such a 'category' leaves it worthless for purposes of insight. It removes dynamic causation and substitutes no other explanation for the sequences found. It yields external descriptions only, and assimilates all cases to those where we discover no reason for the law ascertained.

Our 'laws of nature' do indeed in large part enumerate bare coexistences and successions. Yellowness and malleability coexist in gold; redness succeeds on boiling in lobsters; coagu-

(the 'effect') we fall back into the popular dynamic view, and any single case would exhibit causal action, even were there no other cases in the world. — Or does it bind the observer of the single case? But his own sensations of sequence are what bind him." Be a sequence causal or non-causal, if it is sensible, he cannot turn it backwards as he can his ideas. Or does the rule bind future sequences and determine them to follow in the same order which the first sequence observed? Since it obviously does not do this when the observer judges wrongly that the first sequence is causal, all we can say is that it is a rule whereby his expectations of uniformity follow his causal judgments, be these latter true or false. But wherein would this differ from the humean position? Kant, in short, flounders, and in no truthful sense can one keep repeating that he has 'refuted Hume.'

pretation has recently been urged. If the later member of a succession could be deduced by logic from the earlier member, in the particular sequence the 'tie' would be unmistakable. But logical ties carry us only from sames to sames; so this last phase of scientific method is at bottom only the scholastic principle of *Causa æquat effectum*, brought into sharper focus and illustrated more concretely. It is thoroughly monistic in its aims, and if it could be worked out in detail it would turn the real world into the procession of an eternal identity, with the appearances, of which we are perceptually conscious, occurring as a sort of by-product to which no 'scientific' importance should be attached.[1] In any case no real growth and no real novelty could effect an entrance into life.[2]

Deductive theories of causation

[1] 'Consciousness,' writes M. Couturat, to cite a handy expression of this mode of thought, 'is properly speaking, the realm of the unreal. . . . What remains in our subjective consciousness, after all objective facts have been projected and located in space and time, is the rubbish and residuum of the construction of the universe, the formless mass of images that were unable to enter into the system of nature and put on the garment of reality' (*Revue de Métaphysique*, etc., v, 244).

[2] I avoid amplifying this conception of cause and effect. An immense number of causal facts can indeed be explained satisfactorily by as-

But as nothing corresponding to the concept of power can be insulated, the activity-feature of the sequence erelong gets suppressed, and the vague latency, supposed to exist *aliquo modo* in the causal phenomenon, of the effect about to be produced, is developed into a static relation of identity between two concepts which the mind substitutes for the percepts between which the causal tie originally was found.[1]

The resultant state of 'enlightened opinion' about cause, is, as I have called it before, confused and unsatisfactory. Few philosophers hold radically to the identity view. The view of the logicians of science is easier to believe

[1] I omit saying anything in my text about 'energetics.' Popular writers often appear to think that 'science' has demonstrated a monistic principle called 'energy,' which they connect with activity on the one hand and with quantity on the other. So far as I understand this difficult subject, 'energy' is not a principle at all, still less an active one. It is only a collective name for certain amounts of immediate perceptual reality, when such reality is measured in definite ways that allow its changes to be written so as to get constant sums. It is not an ontological theory at all, but a magnificent economic schematic device for keeping account of the functional variations of the surface phenomena. It is evidently a case of '*non fingo* hypotheses,' and since it tolerates perceptual reality, it ought to be regarded as neutral in our causal debate.

CHAPTER XIII

NOVELTY AND CAUSATION — THE PERCEPTUAL VIEW

Most persons remain quite incredulous when they are told that the rational principle of causality has exploded our native belief in naïf activity as something real, and our assumption that genuinely new fact can be created by work done. 'Le sens de la vie qui s'indigne de tant de discours,' awakens in them and snaps its fingers at the 'critical' view. The present writer has also just called the critical view an incomplete abstraction. But its 'functional laws' and schematisms are splendidly useful, and its negations are true oftener than is commonly supposed. We feel as if our 'will' immediately moved our members, and we ignore the brain-cells whose activity that will must first arouse; we think we cause the bell-ring, but we only close a contact and the battery in the cellar rings the bell; we think a certain star's light is the cause of our now seeing it, but ether-waves are the causes, and the star

really standing still, or falsely we feel ourselves to be moving, when we are giddy, without such errors leading us to deny that motion anywhere exists. It exists elsewhere; and the problem is to place it rightly. It is the same with all other illusions of sense.

There is doubtless somewhere an original perceptual experience of the kind of thing we mean by causation, and that kind of thing we locate in various other places, rightly or wrongly as the case may be. Where now is the typical experience originally got?

Evidently it is got in our own personal activity-situations. In all of these what we feel is that a previous field of 'consciousness' containing (in the midst of its complexity) the idea of a result, develops gradually into another field in which that result either appears as accomplished, or else is prevented by obstacles against which we still feel ourselves to press. As I now write, I am in one of these activity situations. I 'strive' after words, which I only half prefigure, but which, when they shall have

The perceptual experience of causation

The experiencer of such a situation feels the push, the obstacle, the will, the strain, the triumph, or the passive giving up, just as he feels the time, the space, the swiftness of intensity, the movement, the weight and color, the pleasure, the complexity, or whatracters the situation may ough all that can ever vity is supposed. The content save these struction, striving, *qualia* as they are of nown. No matter what there may really be in s extraordinary universe it is imssible to conceive of any one of them being either lived through or thentically known otherwise than in this dramatic shape of something sustaining a felt purpose against felt obstacles, and overcoming or being overcome. What 'sustaining' means here is clear to anyone who has lived through the experience, but to no one else; just as 'loud,' 'red,' 'sweet,' mean something only to

only their harmony and continuity with my general aim. They 'fill the bill' and I accept them, but the exact shape of them seems determined by something outside of my explicit will.

If we look at the general mass of things in the midst of which the life of men is passed, and ask 'How came they here?' the only broad answer is that man's desires preceded and produced them. If not all-sufficient causes, desire and will were at any rate what John Mill calls unconditional causes, indispensable causes namely, without which the effects could not have come at all. Human causal activity is the only known unconditional antecedent of the works of civilization; so we find, as Edward Carpenter says,[1] something like a law of nature, the law that a movement from feeling to thought and thence to action, from the world of dreams to the world of things, is everywhere going on. Since at each phase of this movement novelties turn up, we may fairly ask, with Carpenter, whether we are not here witnessing in our own personal experience what is really

[1] *The Art of Creation*, 1894, chap. i.

effect as in our activity-experiences was made to appear. There is disruption rather; and what we naïvely assume to be continuous is separated by causal successions of which perception is wholly unaware.

The logical conclusion would seem to be that even if the kind of thing that causation is, were revealed to us in our own activity, we should be mistaken on the very threshold if we supposed that the fact of it is there. In other words we seem in this line of experience to start with an illusion of place. It is as if a baby were born at a kinetoscope-show and his first experiences were of the illusions of movement that reigned in the place. The nature of movement would indeed be revealed to him, but the real facts of movement he would have to seek outside. Even so our will-acts may reveal the nature of causation, but just where the facts of causation are located may be a further problem.[1] With this further problem, philosophy

[1] With this cause-and-effect are in what is called a transitive relation: as 'more than more is more than less,' so 'cause of cause is cause of effect.' In a chain of causes, intermediaries can drop out and (logically at least) the relation still hold between the extreme terms, the

substitution for it of the bare descriptive notion of uniform sequence among events. Thus intellectualist philosophy once more has had to butcher our perceptual life in order to make it 'comprehensible.' Meanwhile the concrete perceptual flux, taken just as it comes, offers in our own activity-situations perfectly comprehensible instances of causal agency. The transitive causation in them does not, it is true, stick out as a separate piece of fact for conception to fix upon. Rather does a whole subsequent field grow continuously out of a whole antecedent field because it seems to yield new being of the nature called for, while the feeling of causality-at-work flavors the entire concrete sequence as salt flavors the water in which it is dissolved.

If we took these experiences as the type of what actual causation is, we should have to ascribe to cases of causation outside of our own life, to physical cases also, an inwardly experiential nature. In other words we should have to espouse a so-called 'pan-psychic' philosophy. This complication, and the fact that hidden

APPENDIX

FAITH AND THE RIGHT TO BELIEVE[1]

'INTELLECTUALISM' is the belief that our mind comes upon a world complete in itself, and has the duty of ascertaining its contents; but has no power of re-determining its character, for that is already given.

Among intellectualists two parties may be distinguished. Rationalizing intellectualists lay stress on deductive and 'dialectic' arguments, making large use of abstract concepts and pure logic (Hegel, Bradley, Taylor, Royce). Empiricist intellectualists are more 'scientific,' and think that the character of the world must be sought in our sensible experiences, and found in hypotheses based exclusively thereon (Clifford, Pearson).

Both sides insist that in our conclusions personal preferences should play no part, and that no argument from what *ought to be* to what *is*, is valid. 'Faith,' being the greeting of our whole nature to a kind of world conceived as well adapted to that nature, is forbidden, until purely intellectual *evi-*

[1] [The following pages, part of a syllabus printed for the use of students in an introductory course in philosophy, were found with the MS. of this book, with the words, 'To be printed as part of the Introduction to Philosophy,' noted thereon in the author's handwriting. ED.]

although the world without them is unfinished, are yet such mere externalities as not to alter in any way the significance of the rest of the world when they are added to it.

In our dealings with many details of fact these postulates work well. Such details exist in advance of our opinion; truth concerning them is often of no pressing importance; and by believing nothing, we escape error while we wait. But even here we often *cannot* wait but must act, somehow; so we act on the most *probable* hypothesis, trusting that the event may prove us wise. Moreover, not to act on one belief, is often equivalent to acting as if the opposite belief were true, so inaction would not always be as 'passive' as the intellectualists assume. It is one attitude of will.

Again, Philosophy and Religion have to interpret the total character of the world, and it is by no means clear that here the intellectualist postulates obtain. It may be true all the while (even though the evidence be still imperfect) that, as Paulsen says, 'the natural order is at bottom a moral order.' It may be true that work is still doing in the world-process, and that in that work we are called to bear our share. The character of the world's results may in part depend upon our acts. Our acts may depend on our religion, — on our not-resisting our faith-

theoretical as well as practical, of all concerned, to make it 'come true.'

Intellectualism thus contradicts itself. It is a sufficient objection to it, that if a 'pluralistically' organized, or 'co-operative' universe or the 'melioristic' universe above, were really here, the veto of intellectualism on letting our good-will ever have any vote would debar us from ever admitting that universe to be true.

Faith thus remains as one of the inalienable birthrights of our mind. Of course it must remain a practical, and not a dogmatic attitude. It must go with toleration of other faiths, with the search for the most probable, and with the full consciousness of responsibilities and risks.

It may be regarded as a formative factor in the universe, if we be integral parts thereof, and co-determinants, by our behavior, of what its total character may be.

How we Act on Probabilities

In most emergencies we have to act on probability, and incur the risk of error.

'Probability' and 'possibility' are terms applied to things of the conditions of whose coming we are (to some degree at least) ignorant.

If we are entirely ignorant of the conditions that

single case exclusively. The probability of his house burning is only 1-5000, but if that lot befall he will lose everything. He has no 'long run' to go by, if his house takes fire, and he can't hedge as the company does, by taxing his more fortunate neighbors. But in this particular kind of risk, the company helps him out. It translates his one chance in 5000 of a big loss, into a certain loss 5000 times smaller, and the bargain is a fair one on both sides. It is clearly better for the man to lose *certainly*, but *fractionally*, than to trust to his 4999 chances of no loss, and then have the improbable chance befall.

But for most of our emergencies there is no insurance company at hand, and fractional solutions are impossible. Seldom can we *act* fractionally. If the probability that a friend is waiting for you in Boston is 1-2, how should you act on that probability? By going as far as the bridge? Better stay at home! Or if the probability is 1-2 that your partner is a villain, how should you act on that probability? By treating him as a villain one day, and confiding your money and your secrets to him the next? That would be the worst of all solutions. In all such cases we must act wholly for one *or* the other horn of the dilemma. We must go in for the more probable alternative as if the other one did not exist, and suffer the full penalty if the event belie our faith.

social analogy, as a pluralism of independent powers. It will succeed just in proportion as more of these work for its success. If none work, it will fail. If each does his best, it will not fail. Its destiny thus hangs on an *if*, or on a lot of *ifs* — which amounts to saying (in the technical language of logic) that, the world being as yet unfinished, its total character can be expressed only by *hypothetical* and not by *categorical* propositions.

(Empiricism, believing in possibilities, is willing to formulate its universe in hypothetical propositions. Rationalism, believing only in impossibilities and necessities, insists on the contrary on their being categorical.)

As individual members of a pluralistic universe, we must recognize that, even though we do *our* best, the other factors also will have a voice in the result. If they refuse to conspire, our good-will and labor may be thrown away. No insurance company can here cover us or save us from the risks we run in being part of such a world.

We *must* take one of four attitudes in regard to the other powers: either

1. Follow intellectualist advice: wait for evidence; and while waiting, do nothing; or

2. *Mistrust* the other powers and, sure that the universe will fail, *let* it fail; or

no 'vicious circle' unless a circle of poles holding themselves upright by leaning on one another, or a circle of dancers revolving by holding each other's hands, be 'vicious.'

The faith circle is so congruous with human nature that the only explanation of the veto that intellectualists pass upon it must be sought in the offensive character *to them* of the faiths of certain concrete persons.

Such possibilities of offense have, however, to be put up with on empiricist principles. The long run of experience may weed out the more foolish faiths. Those who held them will then have failed: but without the wiser faiths of the others the world could never be perfected.

(Compare G. Lowes Dickinson: "Religion, a Criticism and a Forecast," N. Y. 1905, Introduction; and chaps. iii, iv.)